

Amendment to the Claims

Please amend claims 18, 19, 23-31, 33, 38-39, 41 and cancel claim 40 as follows:

Listing of Claims

1-17. (Cancelled)

18. (Currently Amended) A method of transmitting packets from devices to output ports, the method comprising:

providing a plurality of requests to transmit data packets from a plurality of devices, wherein each request corresponds to one of a plurality of input queues of one of the devices and includes an output port identifier for transmitting data packets to one of a plurality of output ports;

receiving the requests in parallel at respective inputs of a plurality of sequential allocation stages, wherein an output of each stage is connected to an input of a subsequent stage;

~~at least one all~~ of the allocation stages performing a matching based on the requests to generate ~~one of a~~ partial matching information ~~or a complete matching information~~, wherein the partial matching information is a matching of less than all the requesting devices to a corresponding one of the output ports and the complete matching information is a matching of all the requesting devices to a corresponding one of the output ports; and

transferring, by each of the allocation stages, respective partial matching information to a subsequent allocation stage in the plurality of sequential allocation stages;

excluding, by a sequential subset of the allocation stages, at least a first sequential allocation stage, and the subset performing a matching based on the requests and the respective partial matching information to generate complete matching information, wherein the complete matching information is a matching of all the devices to a corresponding one of the output ports; and

granting permission to an input queue of each of the requesting devices for a corresponding one of the output ports using the completed matching information from ~~the~~ last stage of the plurality of sequential allocation stages,

wherein each matching is based on the same devices and output ports.

19. (Currently Amended) The method of claim 18, further comprising transferring the partial matching information from a current stage of the plurality of allocation stages to a subsequent stage of the plurality of allocation stages.

20. (Previously Presented) The method of claim 18, further comprising transmitting the data packets from each of the input queues that were granted permission to a corresponding one of the output ports.

21-22. (Cancelled)

23. (Currently Amended) The method of claim 19, wherein the transferring of the partial matching information from a stage of the plurality to a subsequent stage of the plurality is based on the number of the requests that are pending.

24. (Currently Amended) The method of claim 19, wherein the transferring of the partial matching information from a current stage of the plurality of allocation stages to a subsequent stage of the plurality of allocation stages is based on at the position of the current stage with the plurality of allocation stages.

25. (Currently Amended) An arbitration unit comprising:

a plurality of sequential allocation stages, wherein an output of each stage is connected to an input of a subsequent stage;

a request unit providing requests to transmit data packets from a plurality of input devices in parallel to the an input of each of the stages, wherein each request includes an output port identifier for transmitting data packets to one of a plurality of output ports;

a grant unit providing final matching information from a last stage of the plurality of allocation stages to the input devices,

wherein each stage is configured to perform a first matching based on the requests to generate the partial matching information during a first period, the first matching based on the same input devices and output ports,

wherein less than all of the stages are configured to perform a second matching based on

the requests and the partial matching information to generate final matching information during a second period, the second matching based on the same input devices and output ports,

wherein the final matching information is a matching of all the requesting devices to a corresponding one of the output ports.

26. (Currently Amended) The ~~packet switching device arbitration unit~~ of claim 25, wherein each of the stages are configured to perform the matching iteratively based on the received requests and the partial matching information from a preceding intermediate one of the stages.

27. (Currently Amended) The arbitration unit of claim 25, wherein each allocation stage includes further comprising an allocation unit to perform the first and second matchings allocate the data packets of an input port to a corresponding output port based on the matching information.

28. (Currently Amended) The arbitration unit of claim 26, wherein at least one of the allocation stages comprises:

an allocator to perform the matching; and

a prefilter to perform one of a forwarding of the requests to the allocator or a forwarding of modified information to the allocator, wherein the modified information is based on the requests and the partial matching information from a preceding stage intermediate information.

29. (Currently Amended) The arbitration unit of claim 28, wherein prefilter determines whether to forward the modified information based on a current matching in the partial matching information from the preceding stage.

30. (Currently Amended) The arbitration unit of claim 28, wherein the prefilter determines whether to forward the modified information based on the number of the requests that are pending.

31. (Currently Amended) The arbitration unit of claim 28, wherein the prefilter determines

whether to forward the modified information based on ~~the-a~~ position of the corresponding allocation stage within the plurality of allocation stages.

32. (Previously Presented) The arbitration unit of claim 28, wherein at least one of the allocation stages further comprises a postfilter unit for filtering out at least one match in the matching information.

33. (Currently Amended) The arbitration unit of claim 25, wherein the request unit comprises a plurality of counters, wherein each counter corresponds to one of the input ports for counting ~~the a number of pending the requests that are pending~~ for a particular output port.

34. (Previously Presented) The arbitration unit of claim 25, further comprises a selection unit to selectively provide the requests in parallel to each of the allocation stages.

35-37. (Cancelled)

38. (Currently Amended) A method of scheduling packet transmissions from input ports of a switching system to output ports of said switching system, the method comprising:

1) operating in parallel a plurality of allocation stages to compute a plurality of matching informations over the course of a plurality of successive time slots;

a) one of the matching informations being a final matching information and the others being intermediate matching informations, wherein a final matching information is a matching computed over the course of all the successive time slots and an intermediate matching information is a matching computed over the course of less than all the successive time slots;

2) performing in each time slot the following steps:

a) providing a plurality of requests to transmit data packets from a plurality of input ports, wherein each request corresponds to one of the input ports and includes an output port identifier for transmitting data packets to one of a plurality of output ports;

b) receiving the requests in parallel at respective inputs of the allocation stages,

one of the allocation stages generating a final matching information based on a preceding intermediate matching information and the requests received;

c) the other allocation stages each generating a new intermediate matching information based on preceding intermediate matching informations and the requests received; and

d) granting permission to the requesting input ports for a corresponding one of the output ports according to the final matching information; and

e) ~~resetting the final matching information,~~
wherein the generating of the intermediate matching and the final matching information are based on the same inputs ports and output ports.

39. (Currently Amended) The method of claim 38, further comprising transferring each intermediate matching information from a current one of the allocation stages to a subsequent stage one of the allocation stages such that the final matching information is obtained from ~~the~~a last stage of the allocation stages in each subsequent time slot.

40. (Cancelled)

41. (Currently Amended) The method of claim 39, further comprising transferring the intermediate matching information from ~~a~~each stage to a subsequent stage.

42. (Previously Presented) The method of claim 38, further comprising transmitting the data packets from each of the input ports that were granted permission to a corresponding one of the output ports.